

REMARKS

Claims 1-37 were examined. Claims 32-37 were withdrawn as being drawn to a nonelected group of claims. To expedite prosecution, Applicants have amended claims 1, 4, 19, 20, and 27. Applicants herein reserve the right to pursue claims of similar scope of original claims 1, 4, 19, 20 and 27 in a continuation or continuation-in-part application. Claims 7-18 and 31-37 have been canceled. Claims 38-51 are newly added. Support for these amendments are identified in the following remarks. No new matter has been added by these amendments. Examination and reconsideration of all pending claims are respectfully requested.

Claim Rejections under 35 U.S.C. §112

Claim 31 is rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to point out and distinctly claim the subject matter which applicant regards as the invention. Claim 31 has been canceled. Applicant herein reserves the right to file a claim of the same scope as canceled claim 31 in a continuation or continuation-in-part application.

Claim Rejections under 35 U.S.C. §102

Claims 1-5, 7-13, 15 and 18-19 are rejected under 35 U.S.C. §102(b) as being anticipated by Sasaki et al. Such rejections are overcome in part and traversed in part as follows.

Amended independent claim 1 provides an apparatus for coating a substrate. The apparatus comprises a support that supports the substrate and at least one movable processing apparatus. The processing apparatus includes a movable chamber configured to create a vacuum environment around a portion of the substrate. A metal source and a thermal heat source are spaced from the substrate and are configured to deposit a metal layer onto the substrate in the vacuum environment. The chamber is movable between a first position adjacent the substrate and a second position apart from the substrate. The cited art does not describe or suggest such an apparatus.

In particular, Sasaki et al. does not provide a thermal heat source that is spaced from the substrate. Instead, Sasaki et al. positions an electrode against a surface of the substrate

to deliver the plasma 5 onto the substrate. Moreover, Sasaki et al. does not appear to provide an apparatus that creates the plasma 5 in a vacuum environment. As described at col. 7, line 64 to col. 8, line 20, the plasma 5 appears to be delivered in an airtight environment with a controlled pressure. After completion of the film layer and when no voltage is being applied to the electrodes, a vacuum is created in each reaction chamber.

Because Sasaki fails to describe or suggest an apparatus that comprises a metal source and a thermal heat source spaced from the substrate and configured to deposit a metal layer onto the substrate in the vacuum environment, the apparatus of amended independent claim 1 is allowable over the cited art. For at least the same reasons, dependent claims 2-19 are also allowable.

Claim Rejections under 35 U.S.C. §103(a)

Claim 6 is rejected under 35 U.S.C. §103(a) as being unpatentable over Sasaki et al. and further in view of Harshberger (U.S. Patent No. 2,000,077). Claim 16 is rejected under 35 U.S.C. §103(a) as unpatentable over Sasaki et al. and further in view of White et al. (U.S. Patent No. 4,342,631). Claim 17 is rejected under 35 U.S.C. §103(a) as unpatentable over Sasaki et al. and further in view of Kimura et al. (U.S. Patent No. 5,053,252). Claims 20-24 is rejected under 35 U.S.C. §103(a) as unpatentable over Sasaki et al. in view of Harshberger. Claim 25 is rejected under 35 U.S.C. §103(a) as unpatentable over Sasaki et al. and Harshberger, and further in view of Akiyama (JP Publication No. 10-168576). Claim 26 is rejected under 35 U.S.C. §103(a) as unpatentable over Sasaki et al. and Harshberger, and further in view of White et al. Claims 27 and 30 are rejected under 35 U.S.C. §103(a) as unpatentable over Kimura in view of Sasaki. Claim 28 is rejected under 35 U.S.C. §103(a) as unpatentable over Kimura and Sasaki, and further in view of Akiyama. Claim 29 is rejected under 35 U.S.C. §103(a) as unpatentable over Kimura and Sasaki, and further in view of Oishi (U.S. Patent No. 5,975,745) and Matsuyama (U.S. Patent No. 5,296,036). Claim 31 is rejected under 35 USC §103(a) as unpatentable over Kimura and Sasaki, as applied to claims 27 and 30 above, and further in view of Shan. Such rejections are traversed in part and overcome in part as follows.

Amended independent claim 20 provides an apparatus for metallizing a substrate. The apparatus comprises a support that can maintain at least a portion of the substrate along a first plane and at least one rotatable processing apparatus that is movable substantially orthogonal to the orientation of the substrate. The processing apparatus comprises a plurality of modular units, which include at least one of a thermoform assembly, a heating assembly, a metallizing assembly, or a cutting assembly. Rotation of the processing apparatus allows a different modular unit to be positioned adjacent the substrate.

It is well settled that in order to establish *prima facie* obviousness under 35 U.S.C. §103(a), *inter alia* the prior art must teach or suggest all of the claim limitations and there must be some suggestion to combine the references, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. *See* MPEP § 2143. The mere fact that the references may be combined is not sufficient to establish *prima facie* obviousness. *See* MPEP § 2143.01. The Examiner has not established *prima facie* obviousness for at least three reasons.

First, the Examiner has not shown where Sasaki et al or Harshberger illustrate a processing apparatus that comprises a plurality of modular units. Sasaki et al and Harshberger show processing apparatuses that do not have modular units. While Sasaki et al. provides two processing units on both sides of the substrate, each processing apparatus does not appear to have a plurality of modular units, as is required by independent claim 20. For example, FIGS. 6 to 12B of the present application illustrate a processing apparatus which comprise a plurality of modular units. Rotation of the processing apparatus would position a different modular unit adjacent the substrate.

Second, there is no suggestion to combine Sasaki et al. and Harshberger. Sasaki et al. only provides an apparatus that has a reaction chamber wall 8 that is linearly movable between the first position and the second position. Harshberger provides an apparatus for applying crushed surfacing materials to a fabric web in a desired pattern. The Harshberger apparatus is not movable between a first position and a second position. Instead, the Harshberger processing apparatus is maintained in static position, relative to the substrate, and

the hopper 40 is rotatable so as to receive the correct pattern of crushed surfacing material. A person of ordinary skill in the art would not be motivated to combine Sasaki et al. and Harshberger, as there is no reason to combine the rotatable hopper of Harshberger with the linearly moving reaction chamber wall of Sasaki et al.

Third, even if there was a suggestion to combine Sasaki et al and Harshberger (which there isn't), the Sasaki et al and Harshberger combination would not provide the apparatus as is claimed in independent claim 20. If Sasaki et al. were to rotate the reaction chamber walls 8 or include a rotatable hopper, such an apparatus would still not be a processing apparatus that has a plurality of modular units, as is required by the claims. Moreover, if the reaction chamber walls 8 are rotated it is not clear how the substrate would be treated, since rotation of the reaction chamber wall 8 would move the reaction chamber away from the substrate. Such a modification would render the Sasaki et al. reference unsatisfactory for its intended purpose. *See In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984) and MPEP § 2143.01.

For at least the three above reasons, independent claim 20 is allowable over the cited art. For at least the same reason, dependent claims 21-26 should also be allowable.

Amended independent claim 27 provides an in-line apparatus for creating an EMI shield. The apparatus comprises a conveyor assembly that moves a substrate from a first station to a second station, and to a third station. A vacuum shaping assembly is disposed at the first station. The vacuum shaping assembly comprises a vacuum source that pulls the substrate against a surface of a mold to shape the substrate into an EMI shield body. A metallization assembly is at the second station that can create a seal around the shaped substrate. The metallization assembly deposits a metal layer onto the shaped substrate. A cutting assembly is disposed at the third station to cut the shaped substrate. The cutting assembly is movable relative to the shaped substrate.

Neither Kimura nor Sasaki et al. describe or suggest the use of a vacuum shaping assembly that pulls the substrate against the surface of a mold to shape the substrate into an EMI shield body. Sasaki et al. does not shape the substrate at all and Kimura et al. only shows the use

of pressure rollers 7, 8 to create track grooves in the optical memory substrate. While Kimura does perform the shaping in a vacuum in some of the embodiments, the vacuum is not used to shape the substrate. Consequently, amended dependent claim 27 is allowable over the cited references. For at least the same reason, dependent claims 28-30 are also allowable.

Added Claims

To more fully claim the novel aspects of the present invention, Applicant has added new independent claims 38-39 and 51 and new dependent claims 40-50. Added dependent claims 40-50 depend from independent claim 20 and correspond exactly to canceled dependent claims 8-18 (which depended from independent claim 1).

The cited references do not describe or suggest the apparatuses in the added independent claims. For example, new independent claim 38 provides an in-line processing apparatus that comprises a plurality of stations. The apparatus comprises a thermoforming station that comprises a pre-heating element and a vacuum source that pulls the heated thermoform substrate against a surface of a mold. The apparatus also includes a vacuum metallization station that comprises a thermal heat source and a metal source. The vacuum metallization assembly can create a seal around the thermoformed substrate so as to create a vacuum environment around the thermoformed substrate. The vacuum metallization assembly deposits a metal layer onto the thermoformed substrate in the vacuum environment. A conveyor assembly moves the substrate from the thermoforming station to the vacuum metallization station. The cited references do not appear to describe or suggest such an apparatus.

Added claim 39 provides a vacuum metallization apparatus that comprises a conveyor that movably supports the substrate. A vacuum chamber is movable between a first position in which a vacuum environment may be created around a portion of the substrate and a second position in which the vacuum chamber is spaced apart from the portion of the substrate. A metal source is positioned within the vacuum chamber. A thermal heat source is positioned within the vacuum chamber, the thermal heat source being spaced from the substrate when the vacuum chamber is in the first position. A control is coupled to the vacuum chamber and

thermal heat source. The control is configured to control the heat source to deposit a metal layer onto the portion of the substrate when the vacuum environment is created. The cited references do not appear to describe or suggest such an apparatus.

Added independent claim 51 provides an apparatus for coating a substrate. The apparatus comprises a support that supports the substrate and at least one movable processing apparatus. The movable apparatus comprises a movable chamber configured to create a vacuum environment around a portion of the substrate and a metallization assembly spaced from the substrate and configured to deposit a metal layer onto the substrate in the vacuum environment. The movable chamber is movable between a first position which creates a vacuum environment around the portion of the substrate and a second position in which the movable chamber is spaced apart from the substrate. The cited references do not appear to describe or suggest such an apparatus.

CONCLUSION

Applicants respectfully request reexamination and reconsideration of the pending claims. If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 206-467-9600.

Respectfully submitted,

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By: Craig P. Wong
Craig P. Wong
Reg. No. 45,231

TOWNSEND and TOWNSEND and CREW, LLP
Two Embarcadero Center, 8th Floor
San Francisco, CA 94111
Telephone: (206) 467-9600
Telefax: (415) 576-0300
CPW/acg
35017076 v1